

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action dated July 15, 2004. Claims 1-27 and 29-47 are pending in the present application. Claims 1-27 and 29-47 have been rejected. Claims 1-2, 6, 10-11, 15, 19-20, 24, 29, and 38-39 have been amended to further define the scope and novelty of the present invention, as well as to correct typographical and grammatical errors. Support for the amendments to the claims is found throughout the specification, and in particular, in Figure 9 and on page 15, lines 3-9. Applicant respectfully submits that no new matter has been presented. Claims 1-27 and 29-47 remain pending. For the reasons set forth more fully below, Applicant respectfully submits that the claims as presented are allowable. Consequently, reconsideration, allowance, and passage to issue are respectfully requested.

Applicant has included a Petition for Extension of Time to extend the deadline for filing a response by two (2) months, from October 15, 2004 to December 15, 2004.

Claim Rejections - 35 U.S.C. §102

The Examiner has stated:

Claims 1, 2, 4-6, 9-11, 13-15, 18-20, 22-24, 27, 29-34, 36, 38-44, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilson et al. (US 6,651,117 B1).

INDEPENDENT:

As per claims 1, 2, 6, 10, 11, 15, 19, 20, and 24, Wilson teaches of a network having a sending computer system and a receiving computer system, each of the sending and receiving computer systems including a processor, a memory (see col. 7, lines 24) and a network adapter (see col. 6, line 10: NIC), the memory containing a data structure used for storing a common data buffer (see col. 6, lines 44-48), a method, system, and a computer readable medium containing a computer program, for sending and receiving payload data by layers or sub-layers (see Fig. 1) of at least one communications protocol (see abstract), the method comprising the steps of: (a) storing a first start pointer pointing to a first byte of the payload data in a first common data buffer of the sending computer system (see col. 6, lines 62-67); (b) adding a first header (see col.3, line 59-60) to the payload data in the first common data buffer at a location preceding the byte pointed to by the first start pointer according to a first protocol layer of the communications protocol at

the sending computer system (see col.6, line 67 to col.7, line 4); (c) adjusting the first start pointer to point to a first byte of the first header (see col. 6, lines 5-8); (d) invoking a send procedure of a second and lower protocol layer of the communications protocol at the sending computer system (see col.6, lines 62-64 and col.8, lines 34-35); (e) transferring to the second protocol layer the start pointer by the send procedure, wherein the payload data is not copied in preparation for or during the send procedure (see col.2, lines 59-61; col.3, lines 51-58; and col.6, lines 1-8); (f) adding a second header to the payload data in the first common data buffer at a location preceding the first start pointer (see col.6, line 67 to col.7, line 4)

{NOTE: Wilson teaches essentially that prior art network layer communication is allowed (see col.3, lines 51-52), thus the number of protocol layers does not functionally distinguish the invention and furthermore, after each succession of layers the pointers are clearly adjusted (see col.6, lines 5-8)}; (g) sending the payload data and the first and second headers to the receiving computer system (see col.8, lines 34-35); (h) storing the payload data and the first and second headers in a second common data buffer of the receiving computer system (see col.9, lines 10-12); (i) invoking a receive procedure of a second protocol layer of the communications protocol at the receiving computer system (see col.9, lines 19-24); (j) storing a pointer and end pointer to the payload data and also storing a second start pointer pointing to a first byte of the second header in the second common data buffer (see col.9, lines 45-48); (k) adjusting the second start pointer to point to the first byte of the first header according to the second protocol layer at the receiving computer system (see col.6, lines 5-8); (l) invoking a receive procedure of a first and higher protocol layer of the communications protocol at the receiving computer system (see note above and col.9, lines 19-24); and (m) transferring to the first protocol layer at the receiving computer system the second start pointer (see note above), wherein the payload data is not copied in preparation for or during the receive procedure (see col.2, lines 59-61; col.3, lines 51-58; and col.6, lines 1-8)...

Applicant respectfully traverses the Examiner's rejections. The present invention provides a method for allowing the sharing of code between communications protocol layers and for eliminating the need for copying payload data between protocol layers in a sending system before the payload data is sent and between protocol layers in a receiving system after the payload data is received. A table describing seven standardized protocol layers (the "OSI Model") can be found in the specification beginning on page 2, line 11. The method of the present invention is accomplished by the creation of a generic protocol layer class (GPLC) having send and receive procedures and a common data buffer in which sent or received payload data is placed and acted upon by each protocol layer implemented with the GPLC. Instead of copying the payload data passed to it by a higher or lower protocol layer, a protocol layer acts

upon the common data buffer by moving a "start" pointer and an "end" pointer along the data contained in the common data buffer prior to invoking the next higher or lower protocol layer. A first header and a second header is stored in the common data buffer at a location preceding the first start pointer, where the second header is contiguous with the first header. Each protocol layer can then process the payload data without it having to be copied. This reduces the amount of memory and processing time required for processing the payload data. (Summary, Figure 9, and page 15, lines 3-9.) Wilson does not teach or suggest these features, as discussed below.

Wilson discloses a network stack layer interface for communication between network stack layers. The network stack layer interface includes a header portion that defines various characteristics of the network stack layer interface. In addition, a buffer descriptor is included that defines data that was, or will be, transmitted over a computer network. The buffer descriptor includes a memory address pointer to the data. In this manner, information is passed between network stack layers via the network stack interface, resulting in fast network data transfer with reduced data copying. (Abstract.)

However, Wilson does not teach or suggest storing a first header and a second header to the payload data in a common data buffer, "wherein the second header is contiguous with the first header," as recited in amended independent claim 1. Referring to Figure 9 of the present invention, the second header is contiguous with the first header. In contrast, referring to Figure 4 of Wilson, the headers are not contiguous. Instead, the headers of Wilson are in separate blocks. Accordingly, Applicant respectfully submits that the headers of Wilson, being in separate blocks, *teaches away* from the present invention. The advantage of the present invention where the headers are contiguous is that only one start pointer is needed. Wilson does not provide this

benefit since the headers of Wilson are not contiguous. Consequently, numerous pointers are required in Wilson to locate each header.

Therefore, Wilson does not teach or suggest the combination of steps as recited in amended independent claim 1, and this claim is allowable over Wilson.

Independent claims 2, 6, 10-11, 15, 19-20, 24, 29, and 38-39

Amended independent claims 2, 6, 10-11, 15, 19-20, 24, 29, and 38-39 recite storing a first header and a second header to the payload data in a common data buffer, “wherein the second header is contiguous with the first header.” As described above, with respect to amended independent claim 1, Wilson does not teach or suggest this feature. Accordingly, the above-articulated arguments related to amended independent claim 1 apply with equal force to claims 2, 6, 10-11, 15, 19-20, 24, 29, and 38-39. Therefore, these claims are allowable over the cited reference for at least the same reasons as claim 1.

Claim Rejections - 35 U.S.C. §103

The Examiner has stated:

Claims 3, 7, 8, 12, 16, 17, 21, 25, 26, 35, 37, 45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (US 6,651,117 B1) in view of Boucher et al. (US 6226680 B1)...

Applicant respectfully disagrees with the Examiner’s rejections. Dependent claims 3, 7, 8, 12, 16, 17, 21, 25, 26, 35, 37, 45, and 47 depend from amended independent claims 2, 6, 11, 15, 24, 29, and 39, respectively. Accordingly, the above-articulated arguments related to amended independent claims 2, 6, 11, 15, 24, 29, and 39 apply with equal force to claims 3, 7, 8,

12, 16, 17, 21, 25, 26, 35, 37, 45, and 47, which are thus allowable over the cited reference for at least the same reasons as claims 2, 6, 11, 15, 24, 29, and 39.

Remaining dependent claims

Dependent claims 4-5, 9, 13-14, 18, 22-23, 27, 30-34, 36, 40-44, and 46 dependent from amended independent claims 2, 6, 11, 15, 20, 24, 29, and 39, respectively. Accordingly, the above-articulated arguments related to amended independent claims 2, 6, 11, 15, 20, 24, 29, and 39 apply with equal force to claims 4-5, 9, 13-14, 18, 22-23, 27, 30-34, 36, 40-44, and 46, which are thus allowable over the cited references for at least the same reasons as claims 2, 6, 11, 15, 20, 24, 29, and 39.

Conclusion

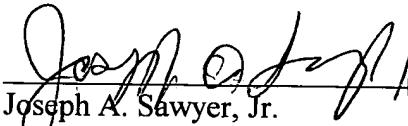
In view of the foregoing, Applicant submits that claims 1-27 and 29-47 are patentable over the cited reference. Applicant, therefore, respectfully requests reconsideration and allowance of the claims as now presented.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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Date


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